

Battery Testing



An energy storage system isn't truly ready until it delivers under the harshest conditions. Cold starts, deep cycles, and extreme thermal stress can reveal weaknesses that standard tests never show. At the Energy Storage Laboratory (ESL), we put energy storage systems to the ultimate test—at the cell, module, and full-pack level—to ensure they perform when the mission demands it most. As an ISO/IEC 17025–accredited laboratory, ESL provides precise, repeatable, and data-driven testing that uncovers real-world limitations, validates performance, and builds confidence in advanced energy storage technologies before they reach the field.

Partner with ESL to validate your designs, mitigate risk, and field energy storage systems that perform decisively across the full spectrum of military operations.

Our Specialized Energy Storage Testing Services

ESL delivers a comprehensive suite of cradle-to-grave testing capabilities focused on one objective: providing actionable data to engineer durable, mission-ready energy storage systems for DoW ground vehicles.

Environmental & Duty-Cycle Endurance Testing: Proving Power Anywhere

A battery's reputation is built on its ability to deliver power in every climate and duty cycle. ESL subjects cells, modules, and full battery packs to controlled thermal environments using large battery test rooms, pack test chambers, thermal ovens, and temperature-controlled water baths. Testing includes cold cranking, deep cycle and high-temperature deep cycle operation, and reserve capacity evaluations to expose failure modes before they threaten mission success.

- **Benefit:** Field batteries with proven all-climate reliability and reduced risk of power loss in extreme conditions.

Performance & Life-Cycle Characterization: Knowing the True Limits

Unlock the full potential—and realistic service life—of your energy storage system. ESL conducts detailed performance-to-specification testing, full charge capacity measurement, life-cycle-to-failure analysis, and hybrid pulse power characterization (HPPC). Centralized cyclers control enables precise, repeatable charge and discharge characterization across operating regimes.

- **Benefit:** Accurately predict service life, optimize performance margins, and ensure dependable power throughout the system's operational life.

Development, Qualification & Robustness Analysis: Engineering for Survivability

The decisive power advantage is engineered here. ESL supports impact testing and qualification to demanding military standards, including MIL-PRF-32143, MIL-PRF-32565, MIL-B-11188, as well as GPMH24000-TOP-6T-Lithium-Ion Qualification and GPMH25000-TOP-6T-VLRA qualification TOPs. From emerging chemistries to fielded systems, ESL validates designs from concept through sustainment.

- **Benefit:** Eliminate unknowns, ensure standards compliance, harden batteries against operational abuse, and accelerate fielding of next-generation energy storage systems.

With accredited processes, specialized facilities, and deep technical expertise, the Energy Storage Laboratory delivers the confidence required to power modern ground vehicles without compromise.

ESL: Where energy storage earns mission confidence.